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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/549,767

04/03/2006

Johan Pieter de Wet

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10/24/2008

INDIANAPOLIS OFFICE: 27879

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EXAMINER

NGUYEN, TAM M

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

10/24/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/549,767

Applicant(s)

PIETER DE WET ET AL.

Examiner

TAM M. NGUYEN

Art Unit

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

The rejection of claims 17-30 under 35 USC § 112 is withdrawn by the examiner in view of the amendment filed on July 24, 2008.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 17-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Becker et al. (DE 199 11910 A1) in view of De Wet et al. (WO 02/31085 A2).

Since the Becker et al (DE 19911910 A1) is equivalent to the Republic of South Africa application No. 20001295 which is in English, for convenience the examiner will use the application No. 20001295 disclose as the disclose of the DE 19911910 A1 patent.

The Becker reference discloses a process for removing oxygenates from a hydrocarbon stream having at least 6 carbon atoms (e.g., 1-octenes) by contacting the hydrocarbon stream with a solvent comprising water and alcohol (e.g., methanol) in a liquid-liquid extracting distillation column to produce an extracting stream which is sent to a solvent recovery column. A hydrocarbon product stream and a solvent stream are recovered from the solvent recovery column. The solvent stream is then recycled back to the extraction distillation column. The Becker reference also discloses that the hydrocarbon stream is from a Fischer-Tropsch process. It is noted that Becker does not specifically discloses that the hydrocarbon stream comprises paraffins. However, the hydrocarbon stream of the Becker reference is from a Fischer-Tropsch process. It would be expected that the hydrocarbon stream of the Becker reference comprises at least a small amount of paraffins. (See entire patent)

The Becker reference does not specifically teach the hydrocarbon stream containing a range of hydrocarbons in the C₈ to C₁₆ range or C₁₀ to C₁₃ range, and does not specifically disclose the amount of oxygenates in the hydrocarbon stream.

The De Wet reference teaches a process for separating oxygenates from a hydrocarbon stream by utilizing a solvent extracting system. The De Wet reference teaches a hydrocarbon stream of a C₁₀-C₁₃ cut containing olefins, paraffins and oxygenates. The reference also teaches that the solvent comprises alcohol and water wherein water is less than 18% of the solvent.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of the Becker reference by utilizing a hydrocarbon stream comprising any amount of oxygenate including the claimed amount with the expectation that a hydrocarbon feed comprising the claimed amount of oxygenate would be successfully treated in the process of the Becker reference.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of the Becker reference by utilizing a hydrocarbon stream containing hydrocarbon within the claimed ranges because one of skill in the art would utilize any hydrocarbon stream having at least C₆ including a hydrocarbon stream having carbon atoms within the claimed ranges with the expectation that any hydrocarbon stream having carbon atoms greater than six including the claimed feed would be successfully treated in the process of the Becker reference.

Alternatively, one of skill in the art would use any hydrocarbon cut including hydrocarbon that is known and is taught by the De Wet reference.

Becker does not specifically teach the amount of water content in the solvent.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of the Becker reference by utilizing a solvent

content the amount of water as suggested by the De Wet reference because such amount is effective in the extracting process.

Since the modified process of the Becker reference is essentially the claimed as the claimed process, it would be expected that the output streams of the Becker process would have composition similar to the composition as claimed.

Response to Arguments

The argument that the solvents of Becker would form azeotropes with C₈ hydrocarbons and not with the relevant oxygenates and it means that the solvent/hydrocarbon azeotrope can therefore be distilled overhead without carrying the oxygenates overhead is not persuasive. Becker teaches that the solvent is consisted of light alcohol (e.g., methanol) and water which is proved successful both for the azeotropic distillation as well as for liquid/liquid extraction with regard to the oxygenates. See Becker: paragraphs 4-5 of page 2; last paragraph of page 6.

The argument that Becker does not teach the recycle of the tops from the solvent recovery column comprising methanol, olefins and paraffins to the extraction step is not persuasive. From figure 3, Becker teaches that stream 17 from solvent recovery columns 9 and 7 is recycled back to liquid/liquid extraction column 3. The examiner has modified the process of Becker by using a feedstock comprising olefins and paraffins as claimed. It would be inherent that stream 17 would comprise at least a small amount of olefins and paraffins. Therefore, the limitation "recycle of the tops from the solvent recovery column comprising methanol, olefins and paraffins to the extraction step" is encompassed by the references.

The azeotrope process of Becker allows for only limited recovery of the hydrocarbons to the overheads is not persuasive because, as discussed above, Becker teaches that oxygenates can be separated from a hydrocarbon feed from either azeotropic distillation or liquid/liquid extraction.

The argument that the present invention is completely different from the process of Becker, which relied on a favorable azeotrope between the alcohol and hydrocarbon while the present invention the azeotrope between methanol and hydrocarbons not responsible for the hydrocarbon recovery is not persuasive. As discussed above, Becker teaches that oxygenates can be separated from a hydrocarbon feed from either azeotropic distillation or liquid/liquid extraction by using a solvent comprising alcohol (e.g., methanol) and water as claimed.

The argument that De Wet does not disclose the recycle of the tops from the solvent recovery column comprising methanol, olefins and paraffins to the extraction step is not persuasive. The examiner relied upon De Wet to teach the availability of a stream comprising oxygenates, olefins, and paraffins. The recycling step is already discussed above by Becker. Moreover, De Wet also teaches the recycling step of solvent for reuse. Applicant's argument against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The argument that De Wet teaches the use of n-propanol, but not methanol is not persuasive. Becker teaches a solvent comprising alcohol (e.g., methanol, ethanol, propanol and butanol) and water, but does not specifically teach the amount of water in the solvent. De Wet

teaches the use of a solvent comprising alcohol and water wherein water is used in the amount of less than 18%. One of skill in the art would motivate to use less than 18% of water (e.g., 15%) in the solvent of Becker whether the alcohol is methanol or propanol.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TAM M. NGUYEN whose telephone number is (571)272-1452. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TN
/Tam M. Nguyen/
Primary Examiner, Art Unit 1797